

ABSTRACT OF THE DISCLOSURE

Organic substrates having integrated components and systems and methods for designing and optimizing integrated components for substrates are provided. One embodiment is a computer program embodied in a computer-readable medium for optimizing the design of an integrated inductor in a substrate adapted for use in integrated circuits. Briefly described, one such computer program comprises: logic configured to receive one or more design parameters for a substrate structure in which an inductor is to be integrated, the design parameters specifying at least one of the material characteristics, the physical characteristics, and electrical characteristics of one or more substrate layers and one or more conductor layers comprising the substrate structure; logic configured to receive one or more process parameters associated with a predetermined type of integrated circuit package in which the substrate structure is to be implemented; logic configured to generate a coupled-line model for a plurality of configurations for an integrated inductor, the coupled-line model comprising one or more coupled lines and one or more discontinuities; logic configured to simulate the frequency response of the coupled-line models based on the design parameters and process parameters; and logic configured to determine an optimal configuration for the integrated inductor which satisfies the design parameters and process parameters.